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Rail Road News.

The Hudson River Railroad.

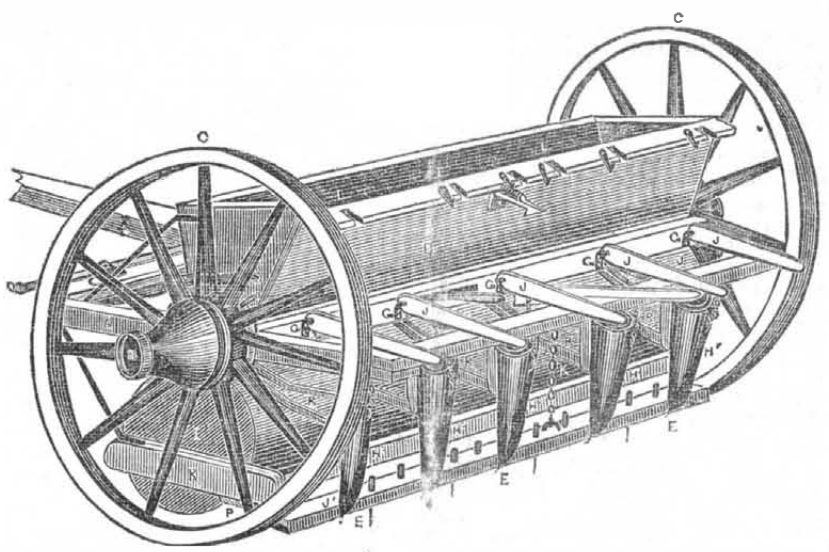
A report from Mr. Young, the chief engineer of the Hudson River Railroad, now being constructed from New York to Albany, says the engines in use have been proved to possess a capacity to run at the rate of 72 miles in two hours and a half, including from ten to fifteen way stoppages. The same rate of speed would cover the distance between New York and Albany in five hours. Mr. Young is confident that a through-train, stopping only three times, will make Albany without difficulty in four hours. The travel upon the road since its completion to Poughkeepsie, has been increasing monthly at an average rate of about twenty-five per cent. The rates of fare are one and a third cents per mile, which will be equivalent to $2 to Albany. In the winter two cents per mile will be charged, or $3 to Albany. The road is rapidly progressing north of Poughkeepsie.

The receipts of the Erie Railroad Company, for the month of April, 1850, were 141,994 89 against $62,123 24, for the corresponding month in 1849 showing an increase of $79,861 65, for the month this year. The above sum this year was from the traffic of 360 miles of road, while the receipts of the Baltimore and Ohio Railroad Company for 180 miles of road, for the month of March last, were $160,000. There are, at least, two other railroads in this country earning more in the aggregate than the Erie, on one half the extent of road. We allude to the (Massachusetts) Western, and the Baltimore and Ohio; the first costing about nine million of dollars, and the latter seven million. When the running expenses on 360 miles of road, wear and tear of track, depreciation of superstructure and bridges, cost of maintainance of ferry, and lateral roads, interest on bonds, and floating debt, are all paid for the month, very little will be left out of above amount, but we regard the road as doing well under the circumstances, and the stockholders may reasonably hope for a profitable investment, when the road is concluded to the lake.

The Portland and Kennebec Railroad, from Portland to Augusta, requires a large amount to finish it. All the towns along the line have voted to apply to the Legislature for leave to sustain the enterprise with their credit. Augusta voted last week, 398 to 195, to petition for liberty to raise $200,000 towards finishing the road. The whole cost of the road is estimated at $1,000,000, and only $540,220 have been paid in while the expenditures, have already reached 1,145,663. The Portsmouth, Saco and Portland Railroad, have voted to take $100,000 of the stock, and it is estimated that $100,000 more may be collected of the stockholders.

The Railway Times of Boston, is printed in ink that knows not how to blush, at least that was our impression in reading its first page of May 2nd.

IMPROVED SEED PLANTER.---Fig. 1.

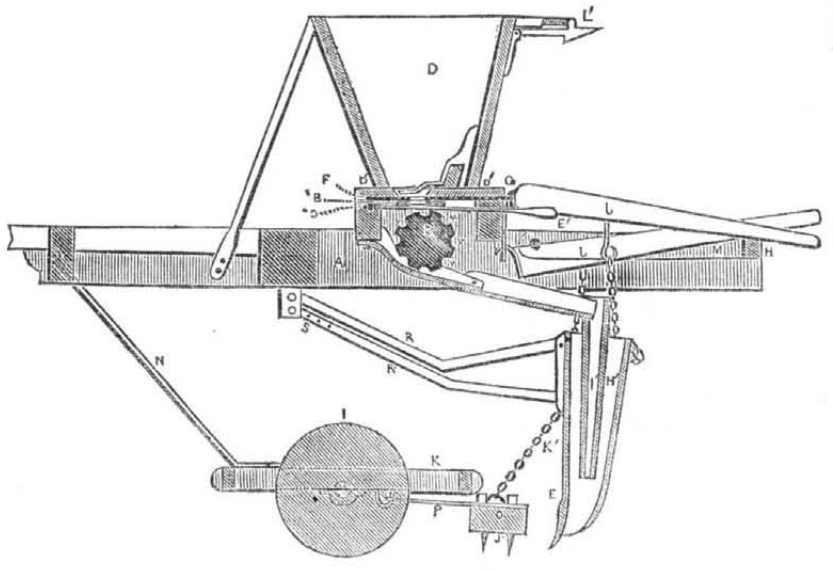


This improved Seed Drill is the invention of Messrs. Flory and Geo. A. Grove, of Chambersburg, Pa., and secured by U. S. Patent on the 12th day of last March.

Figure 1 is a perspective view, and figure 2 is a vertical longitudinal section. The same letters refer to like parts.

The principal features of it are its being so constructed that the deposit of seed is regulated by a register, by which the seed is continually agitated, thus ensuring a uniform discharge. The cultivator teeth, which form the furrows, are secured on tubular shanks, and arranged in such a manner that either one or all of them may be raised from the ground and secured in their raised position, and while raised, the discharge of seed is stopped in the tubular shank or shanks of the *one* or more raised teeth. The most important part of the improvement is for crushing and crumbling clods, which is arranged to precede the cultivator teeth, thus smoothing the ground to an even surface before the deposition of the seed. A is the frame, hung from the axle, B, of the two wheels, C C. The wheel to the right hand is loose upon the shaft, the other is made fast to it, and the shaft turns along with it. The shaft is a cylinder perforated with cavities, V V, which discharge the seed. D is the hopper, supported on the frame above the shaft, and has a series of openings, through its bottom, D′, in number corresponding with the cavities, V V. Each opening is closed by a plate, E, in which is a hole to allow the seed free passage. Below the plates there is a sliding Register, C′, extending the length of the hopper bottom, and pierced with holes to correspond with the position and number of those in the bottom of the hopper, and is operated by a hand lever, E′, to shut part of the openings or close them entirely, to regulate the quantity of seed to be discharged. Above each plate is a separate register, F, to slide at right angles to the large registers, and it is connected with a hook, G, depending from the hinged end of the hand lever, J. E E are the teeth, they correspond in number to the holes mentioned, and each is secured on the lower end of

Figure 2.



a shank tube, H, through which the seed is conducted through a flexible shute, J, and the pipe, I′ and dropped into the furrows made by the teeth. Each shank is attached to the compound beam, R R, which is hinged to the frame. This beam is composed of two parts, the upper one unalterable, the other is pierced with holes, S, any one of which, by a pin, may change the length of beam by connecting it to the cross bar, to give any desired inclination to the shank of the tooth, E. The chain, R′, by its hand lever, J, will raise the tooth by lifting it up, and will draw the register, F, over the hole of the plate, B′, and stop the discharge of seed. The lever can then be held up by a catch, L, on the back of the hopper. The hand levers when down, rest on the cross-bar, H, extending across the frame and attached to the arm, M. By raising the cross bar the whole of the levers resting on it are raised, and the whole may be held up by the large spring catch, L′, on the back of the hopper, D.

To prepare the ground for the seed, I is a roller running in the frame, K, and connected to the front of the frame by the bar, N, which is hinged to the frame, to allow the roller to rise and fall. J′ is the harrow, formed of a heavy bar, O, which is furnished with teeth, and is connected with the roller frame by a rod, P, on each side. The harrow is connected with a hand chain, K′, and to the lower lever, J, fig. 2 (letters turned wrong way), and the roller by it can be lifted from the ground, and it can be raised at the same time with the teeth, and can also be secured by a catch. A shaft is secured to the front of the frame, to which the team is attached. When the machine is in use, the several members of it occupy the positions represented in fig. 2. When the cultivator teeth become clogged, they can be raised to free them from grass, roots, &c., and the teeth can be raised to pass any obstruction. It will be observed that the crushing of the clods and the harrowing and smoothing of the surface of the ground is a very excellent combination, and will be generally appreciated. The patent claim is based on this, in combination with the seed planter.

More information about the rights, &c., of this invention will be obtained by letters addressed to them (*p. p.*) at the place mentioned above.

Useful Receipts.

Japan Writing Ink.

Boil four ounces of logwood one hour in six quarts of water, supplying the deficiency as it wastes; strain the decoction, and add more water to make the quanity up to five quarts; if it be deficient, and while the liquor is still hot, add twenty ounces of bruised aleppo galls; four ounces of sulphate of iron, previously calcined to whiteness; three ounces of brown sugar, six ounces of gum arabic, and half an ounce of acetate of copper, set the vessel past for fourteen days, frequently agitating it, during the above time; afterwards let it stand at rest till the coarser parts have fallen to the bottom, then pour off and bottle for use.

Good Writing Ink.

Take finely bruised galls, three ounces; sulphate of iron, one ounce; logwood shavings, one ounce; and of vinegar, one quart, put these ingredients into a bottle, and agitate them occasionally for twelve or fourteen days, then let the courser parts subside, and pour off the ink for use.

Note.—The tendency of ink to become mouldy is prevented by keeping a few cloves in the ink bottle, or by dissolving about three grains of corrosive sublimate in each pint: but recollect corrosive sublimate is virulent poison.

Russian Ink Powder.

Blue galls, two ounces; gum arabic, half an ounce; sulphate of iron, four ounces; all powdered and well mixed together.

Green Ink.

Dissolve distilled verdigris in strong vinegar, and make into a proper consistency for writing with—with a solution of gum arabic.

Yellow Ink.

A little alum added to saffron and water, makes a very good yellow ink, thicken with gum.

Red Ink.

Take a strong decoction of Brazill wood, and a little gum water and some little alum with a few drops of the chloride of tin.

A huge skeleton of an Indian was dug up last week, at Harsimus, N. J., among the oyster shell strata. It measured eight feet in length. The skull measured two feet in circumference, and 15 inches over the top.

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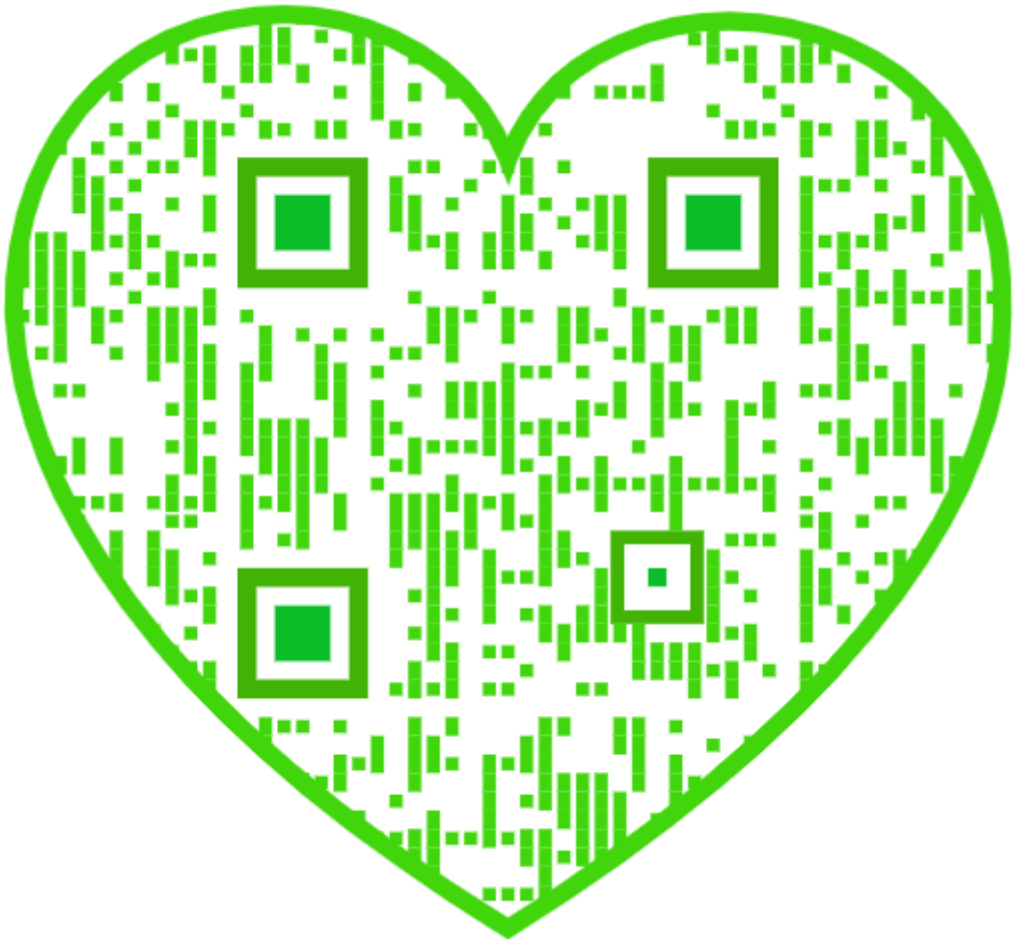

Miscellaneous.

Correspondence of the Scientific American.

WASHINGTON CITY, May 8, 1850.

It is one of the cheering signs of the times that the South is at last waking up to a knowledge of its true interest; and the people are beginning to be conscious that the only way to bring about an equilibrium between the two great sections of the Union, is for the South to embark as extensively as possible in manufacturing enterprises and pursuits. The number of cotton manufactories is fast increasing, and in North Carolina and Georgia there are more than double the number of those in Virginia. Owing, however, to the want of practice and experience, they have at present to depend on superintendants from the North, to whom they give liberal salaries.

From an old Virginia document, it appears that the silk culture was first started in that State in 1663; and it was a penal offence if trees were not planted at the rate of ten for every hundred acres. In 1760 the London Society for the Encouragement of Arts, gave premiums for silk raised in Georgia, Pennsylvania and Connecticut. In Rhode Island silk was raised as early as 1758. It is said that the weaving of silk in America was first tried in 1833 at Marshfield, Conn.

The water is to be let into the Chesapeake and Ohio Canal in June, and in July it will be in navigable order for boats propelled by steam. Arrangements have been made for coal deposits at Alexandria, where shipments in propellers will be made North and East.

Professor Rodgers has commenced his course of geological lectures at the Smithsonian Institute. Last evening he adduced many interesting proofs that the interior of the earth consists of lava in a state of fusion. He said at the depth of two miles below the surface water will boil, and that it is calculated that at a depth of twelve miles all is liquid fire. In confirmation of this theory, he observed that from numerous experiments the heat increases in proportion to the depth.

The second part of Mr. Ewbank's Patent Office Report is highly interesting, and if the Printers to Congress shall live to print it, every farmer and mechanic in the country will be desirous of having a copy. According to the present speed in such matters, we may reasonably expect the parties to complete by the 4th of March next.

It is understood that the Hon. Zadock Pratt, of your State, is exerting himself with his usual zeal for the interests of mechanics, to have an American "World's Convention," to be held in the City of New York in 1852.—With such at the work, we may rest assured the thing will be done.

Several of Jennings' patent rifles are exhibiting in the Congressional Library. From experiments made by Col. Talcot, they have been pronounced very effective. It is much more destructive than the Prussian rifle or Colt's revolver, and much more easily handled and loaded. It will kill at 800 yards, and may kill 20 men per minute. Will not the perfection of these deadly instruments be to cause the nations to dread war?

At Foy's Hotel, in this city, is exhibiting a patent knitting machine, which in a month will furnish stockings for a regiment.

The bill recently introduced by Mr. Sturgeon, in the Senate, for the establishment of an Agricultural Bureau in the Department of the Interior, has the following provisions:—A Commissioner is to be at the head of it, with the same salary as the Commissioner of Patents; his duty is to collect agricultural statistics, and to put in operation a chemical laboratory, at a cost not exceeding two thousand dollars, for the analyzation of minerals and mineral waters, and such as relate to the composition of soils; the manufacture of sugar and such other manufactures as may be connected with agriculture, An annual report is to be made to Congress containing an account of the experiments.

The ship builders at Baltimore are now building a steamship for the California trade with the propeller attached. The efficiency of this instrument appears to be acceded to by all The objection to the Loper propeller, by the advocates of the side wheel, was, that it operated obliquely upon the water. But they did not reflect that the side wheel, as applied to ocean steamers where a greater dip is requisite than with light and unvarying draughts, it is evident that by the rolling incident to them in a heavy sea, the paddle is as oblique in its operations, and is attended with greater losses by friction and pressure than a screw propeller. Not only our own government, but the British and French, are realizing the utility of this mode of propulsion by the introduction of propeller ships into their navies. *

Cotton Factories.

The last number of the Mining Journal contains an able article on the "building of cot ton factories at Pottsville." We know of few places where fuel could be so well supplied at a moderate price as at Pottsville, and goods could be manufactured there by steam power, cheaper than in some places with water power, but at the present moment, we do not think it would be prudent for any of the North or Middle States to erect new cotton factories. The southern States alone have any hope of success, and it is best for them also to have a little prudence in counting the cost. Our northern factories are in a very sorry condition at present,—they have too many goods on hand. They must commence to make finer goods than they have heretofore done and let the South make the coarse goods, which can be made there cheaper than at the North.

Ship's Blacksmith.

A ship's blacksmith, says Colton, has no such word as can't in his vocabulary. He takes his order, and tries to shape his iron accordingly, though he may know it to be utterly impractible. We had on board the Natchez an old time piece which had broken its main spring. The first lieutenant, for fun, told the blacksmith to take it to the anvil and put a new mainspring into it. Hearing the puff of the bellows and the clink of the hammer, I went forward where I found the old watch taken to pieces, and the worthy representative of Vulcan beating his full force a piece of iron. "What are you doing with this time piece?" I inquired. "Making a kinked-up sort of a thing, sir, to make it go," was the reply.

Mammoth Steamer on the Missisippi.

The St. Louis Revielle announces the appearance at the Levee of a new steamer,—"The St. Louis," just completed, and the largest on the Mississippi or its tributaries. Her length is 370 feet, beam 39 feet, depth of hold 9 feet. The cylinder of her engines are 31 inches in diameter, with 10 feet stroke. She has two smaller engines to do the work of the boat, hoisting out the freight, &c. Her wheels are 40 feet in diameter, and work 13 feet of bucket. She has 5 boilers, each 44 inches in diameter, and 32 feet in length. Her length of cabin is 260 feet, with 50 state rooms in the main cabin. Those attached to the ladies' cabin are fitted for the accommodation of small families, and can contain from 3 to 4 persons. Bathing rooms are connected with it. The cost of the St. Louis is set down at $80,000.

Woman.

A writer in a late Review, speaking of the Roman women, and their influence during the existence of the kingdom, says:—"From the Sabines to Theodora's conquest of Justinian, women seem to have been at the bottom of almost all the memorable events of Roman history. Lucretia, Virginia, Veturia, Fabia, the wife of Licinius, who became at her instigation the First Plebeian Consul, are illustrious examples of this: and whatever may be the changes of manner of opinions, as Hume has well remarked, all nations, with one accord, point, for the ideal of virtuous matron, to the daughter of Scipio, and the mother of Gracchi." Who, then, will doubt the influence of woman?

Gas in Wheeling.

The City Councils of Wheeling have subscribed $15,000 to the stock of the Wheeling Gas Company.

Color of the Ocean.

The waters of the globe exhibits various hues, which depend upon a variety of circumstances. The ocean absorbs all the prismatic colors except that of ultramarine, which is reflected in every direction. This is its true color in general when seen apart from atmospheric influence, modified by depth; but every gleam of sunshine, passing clouds, winds, shoals, and sandbanks, affect its tints. Particular parts of the ocean show peculiar colors. The sea is white in the Gulph of Guinea, and black amid the Maldive Islands. Various purple, red and rose-colored waters occur in the higher parts of the Mediterranean, in the vermillion sea off California, the Red Sea, and in tracts along the coasts of Chili, Brazil, and Australia.—Green water appears in the connection with the deepest blue in the Arctic ocean. The appearances are permanent, and so distinct, that ships have been partly in blue and partly in green at the same time. These tints are occasioned by differently colored animalculæ, which swarm in countless myriads in the tracts in question. The same species of animalculæ which color the Red Sea, have been found in other similary tinted districts of the ocean. The green of the Arctic seas is produced also by minute animals, which visit in spring the coast of Holland, and have been encountered in immense shoals migrating in the Atlantic. In the Antartic regions, Sir James Ross remarked repeatedly the change of color of the sea, from light oceanic blue to a dirty brown, caused by ferruginous animalculæ. The phosphorescence of the ocean, a magnificient and imposing spectacle, when the waves scintilate with bright green sparks, or exhibit a long line of fire flashing in a thousand directions, is mainly caused by minute organic beings, which are phosphorescent while alive; a property retained by the gelatinous particles with which certain tracts of the deep are thickly charged—their dead and dismembered relics. At the same time, a disturbed electrical condition of the atmosphere may be most favorable to the phenomenon.

Off with the Beards.

The Emperor of Russia has taken a sudden antipathy to the patriarchal superfluities now so much in vogue, and, we are told, has issued an ukase commanding his nobility to shave off their beards immediately. There will be a revolution in Russia, in consequence—but it will be confined to the world of fashion, and mustaches will fall, instead of thrones.

[We want the emperor here for a couple of months.

New England Industry.

The Bangor Whig states that in the valley of the Blackstone river from Pawtucket to Milbury, a distance of thirty miles, there are 115 cotton and wollen factories, besides six large machine shops, two large axe factories, and three extensive scythe works, giving a total of 126 manufactories. Many of these are very extensive, the largest wollen cotton mill in the United States being among the number.

A Telegraph to California.

Mr O'Reilly announces in the St. Louis Republican, a project of telegraph line from that city to San Francisco. He proposes that the Government shall establish a line of stockades at suitable distances along the route, which shall serve as telegraph stations, and at the same time afford protection to emigrants to California, and facilitate the transmission of the mails.

Patent Case.

We have seen a notice in some of the Boston papers about Mr. Goodyear having suffered a nonsuit in an action which he brought forward in the U. S. Circuit Court against the Boston and Maine Railroad Co., for using India Rubber Car Springs, supplied by Fuller & Co., and made by Mr. H. H. Day, of New York.

The directors of the Connecticut River Railroad have voted to create new stock to the amount of $300,000 or $400,000, as they are empowered to do by acts of the Legislature, and to give this new stock a preference for ten years, to August, 1860, guarantying to its holders 4 per cent. semi-annually, from the earnings of the road.

Works on Science and Art.

MARINE AND NAVAL ARCHITECTURE. By John W. Griffiths, Marine and Naval Architect.—Number 5 of this incomparable work contains a number of plates and the letter press is executed in the same excellent style as the previous numbers. The matter relates principally to "Water Lines," and their effect in modelling, and Mr. Griffiths analyses what is termed the "Wave Line Principle," a discovery claimed by Scott Russell. We hope that every ship carpenter will make himself thoroughly acquainted with this work.

DICTONARY OF MECHANICS, ENGINE WORK AND ENGINEERING.—Part 9 of this work, published by Messrs. Appleton & Co., contains engravings of Dressing Mill Stones, Metal Drilling Machines, Dry Dock at Brooklyn, Dynometers, and some good information on Electricity and the Electric Light, (not Paine's.)

We are indebted to Messrs. Birkinbine, Martin & Trotter for a useful illustrated pamphlet on the method of Warming and Ventilating part of Blockley Almshouse, Philadelphia.

Messrs. Appleton & Co. have just issued a very excellent Dictionary of Scientific Terms, by Hoblyn. This work has been very much needed in the community, and will no doubt, as it should, meet a large sale.

The City of Glasgow.

This is the name of a new steam ship which arrived at this port on last Friday, from the City of Glasgow, Scotland, in 16 days 21 hours. This is a remarkable passage, as she had about one day's more sail than from Livepool and is propelled by a screw. She is an iron vessel of 1600 tons burden, of a most beautiful form, embracing the hollow water line principle, so well understood on our North River boats. Her engines are 350 horse power built by those eminent engineers, Todd & McGregor, of Glasgow. This vessel shows the ability of the Clyde Engineers in constructing marine steam ships. The City of Glasgow (not the ship) is the mother of Marine Navigation, all the Cunard steamers are built there, and the fame of her engineers is world wide. It was there where Watt planned his first steam engine, and Henry Bell built his first steamboat.

Cholera.

The Indiana State Sentinal states as a fact, that the cholera this season has attacked the cabin passengers on the rivers, and that almost without exception the deck passengers have been exempt. If there is any rule well established in regard to this mysterions disease, it is the fact of its re-visiting the scenes of its former ravages and selecting its victims from among the better classes.

Steam between Virginia and Europe.

The people of Norfolk are diccussing the feasibility, as in their minds there is no doubt of the necessity, of having a line of Atlantic steamers between that port and Liverpool.—An intelligent writer in the Richmond Whig states it is for the interest of the whole South to encourage, and advance the capital for such an enterprise.

Malaria.

A correspondent of the American Farmer, for May, has furnished the editor with a paper on the subject, in which he details various facts, and gives the experience of the most eminent writer on Malaria, to prove that the effects of these noxious vapors may be prevented, by the planting of trees of thick foliage around the dwelling, in the direction from whence they proceed. Mr. Jas. Gregorie, a planter of upwards of seventy years, is the author of this paper.

[There can be no doubt of the truth of the above, in the main points. It is well known that the Dutch to make cinnamon high in price, cut down a great number of the trees in Ceylon, which resulted in bringing about a great deal of malaria sickness, a sickness which never left the Island in the places where the huge trees had been cut down until new shade trees had grown up in there places.

The Suffolk Cotton Mills at Lowell, Mass., are about to reduce operations to about one half of their 500 operatives. Other factories are about to do the same thing.

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Fusible Plug for Boilers.

Almost every body knows that the pamphlets which have been sent out from the Patent Office, from time immemorial (nearly), containing instructions to inventors commence the form of "specification" with, "I, Sebastian Cabot, have invented an improved mode of preventing boilers from bursting, by providing the upper part of a steam boiler with an aperture to be closed by a fusible plug or disk of alloy, to fuse at a given degree of heat, to allow the steam to escape," &c. Well, a few weeks ago, a *not* well informed correspondent published a communication in the "Eastern Mail," Waterville, Me., recommending this same thing, and the paper came to us marked "please insert this." Instead of publishing a newly vamped invention, we merely, in a note, a few weeks ago, mentioned that "the fusible plug was old, that boilers had exploded with them, and that the *Reports* of Mr. Burke would give all the desired information on the subject." Not satisfied with this, the Editor of the "Mail" takes up the cudgel for *his* correspondent, in the Mail of the 18th April, and indulges in a very immoderate warmth of language on the subject. Hear what he says,—

"In all the philosophical principles developed, thus far, by scientific committees of investigation, we see nothing that should destroy a reasonable confidence in the 'fusible plug.' Indeed the singularity of the objections brought against it, can only tend, in any enlightened mind, to confirm this confidence. Like all other discoveries, its simplicity is fatal to its success. To 'wash in Jordan' was proved a wise remedy thousands of years ago, and yet its virtues are but just beginning to be appreciated. This simplicity has even led the editor of the Scientific American into what appears to us a very singular decision."

There is not an engineer on the Hudson, Ohio, or Mississippi rivers, but is acquainted with the fusible plug, and many boilers now use them. In referring to Mr. Burke's Report, we always like to point to sources of correct information, and as *we know that implicit* dependance cannot be placed in the fusible plug, we merely mentioned the fact. Leaving out all that we personally know about it, let us quote undisputed authority, viz., John Bourne, C. E. He says, in his splendid work on the Steam Engine," "plugs of fusible metal were at one time much in repute as a precaution against explosion, the metal being so compounded that it melted with the heat of high pressure steam, but the device, though ingenious, has not been found of any utility in *practice*." Aye, practice is the thing. Well, as if to have practice on the side of the Editor of the "Mail," he seizes Mr. Burke's report and reads—

"The government of France, over twenty-five years ago, passed a law prohibiting the use of cast iron boiler heads, after some destructive explosions from this cause. It also passed a law compelling all high pressure boilers to have their strength tested by hydrostatic pressure every three months, to ascertain if they were in any way defective, and also passed a law compelling all high pressure steamboats to use plates of fusible alloy on the top of their boilers, which would fuse at a certain temperature and prevent an explosion, which had frequently happened previous to these acts, and many lives lost; but since these laws were enforced we have scarcely heard of an explosion in that country. Now the fusible alloy, used by Mr. Evans in his guard, is precisely the same as that used by the French government but the arrangement in his invention is far superior and more simple than that of the French, and our government might have been using the fusible plate previous to Mr. Evans's improvement. What a misfortune our government did not follow the example of France twenty years ago, &c."

Gloating over this extract, he attempts to prove that we asserted what was not true, but the Report states that "two or three explosions had taken place in steamboats using "Evan's Guard," which is stated to be superior and more simple than the French fusible plate. Again he says, "If the testing of the boiler operates as a security in France, the test and inspection required by law would give the same security here. What then, but the identical 'fusible plug' has done all this? And if it has accomplished so much in France, what stands in the way of the same result in this country? Where does the Scientific American find authority for the assertion that "many boilers with such plugs have exploded?"

Yes, sir, *the test* and security required by French law would give the same security here, but unfortunately we have neither, so, then, the fusible plug has not given all the security for life in France, for if it did, how very foolish it is to be at the expense of regularly testing and inspecting their boilers. Now we have never said a word against using the *fusible plug*, only not to *place all dependence* on it. Careful engineers, a rigid system of inspection, severe and certain punishment for neglect and recklessness would, without the fusible plug, make explosions as rare in our country as in England, where there are a hundred steam engines for one in France.

Sugar and its Uses.

The French people are great eaters of sugar, always carrying some of it about with them in their pockets. M. Chessat reports that sugar, when used as the exclusive or principal article of diet, produces quite opposite effects in persons according to the difference in their systems; for, while it fattens some, it creates bile which induces a diarrhœa and a wasting of the solids in other persons. The celebrated Bolivar had, by fatigue and privations, so injured the tone of his stomach, that he was unable at times to take any other food than sugar, which, in his case, was easy of digestion.—His personal friends assure us that in some of his last campaigns he lived for weeks together upon sugar alone as a solid, with pure water as a liquid; but, probably, in nine hundred and ninety-nine cases out of a thousand, this diet would soon have brought the person adopting it to his grave; for, on those whose digestion is feeble, a larger or exclusive allowance of sugar adds to their grievance, because the excess of nutriment not being generally absorbed by their weakened system, becomes converted to bile, and causes great debility and wasting of the body. In seventeen experiments made on dogs, M. Chessat observed that, when the sugar diet fattened them there was a general tendency to constipation meanwhile; and, on the contrary, when it produced an excess of bile in other dogs, their bowels were relaxed. Why English children suffer in their digestion after eating largely of sugar-lumps, confits, &c., is chiefly owing, however, to those delicacies being composed of the refuse of starch works, mixed with plaster of Paris, pipe clay, and chalk, and having, indeed, as little sugar as suffice to give them a palatable sweetness; and they are often colored with gamboge, and sometimes with red led, verdigris, and other mineral poisons.

Everwhere the beast of the field, the reptiles, the fish and insects, are found to have a great liking for sugar and honey. Mr. Martin says he has tamed the most savage and vicious horses with sugar, and has seen the most ferocious animals domesticated by being partly fed upon it. The tamers of lions and tigers owe their power over them, chiefly to a judicious use of sugar and other sorts of sweets and also of lavender water, and various other perfumes, of which feline animals are remarkably found. In the sugar season, in the West Indies, the horses, mules, and cattle, soon acquire a plumpness and strength by partaking of the leavings of the sugar canes, after the manufacturer has done with them. In Cochin-China, the elephants, buffaloes, and horses, are all fatened with sugar. We learn from the "Memoirs of Dr. Edw. Cartwright," (1843,) that the ingenious man used to fatten sheep on sugar.

In our country there is more sugar used than in Britain and many of the nations of Europe, and although it is generally admitted to form good food, yet it is not prudent to use too much of it, for it is not, singly, a good supporter of life. In the northern States, and especially in those districts where considerable maple sugar is made, a great deal of it is eaten by young people, not as food, but to gratify a passion for it. This is wrong. It is very easy to form a habit of desire for any thing sweet, sour or bitter, from sugar to opium and tobacco, but if these things are not necessary, they must be the reverse. One thing we know, and that is, maple sugar is very destructive to teeth—ten times more than crab-apple vinegar, in fact all sugar is severe on teeth, and it may be that the cause of early decay in teeth, so common throughout our country, and which is a subject of surprise to Europeans, is owing to the great amount of sugar eaten in the shape of maple sugar, cakes and candies.

Percussion and Re-Action Water Wheels.

MESSRS. EDITORS:—The article of R. C. M., in Vol. 5, No. 27, Sci. Am., requires as brief a notice as possible from me, the only agent of Zebulon Parker in Illinois, and as such agent the person meant by Mr. R. C. M., when he says, "We have a specimen of these wheels in this vicinity, made and put in operation under the superintendance of Mr. Parker's agent." If Mr. R. C. M, had confined himself to the text at the head of his article and given to the public some light upon the subject of re-action water wheels, in contra-distinction to the article of J. S., in No. 17, Sci. Am., I should have been content to let the world have all his wisdom without notice or comment. But his object was not, as he professes, to enlighten the public mind, but to gratify personal jealousy. Now, so far as the article refers to the "specimens of such wheel" on Black River, it is distorted, inconsistent and wholly subservient to wrong motives. It is not true that any wheel or wheels have been constructed and put in operation under the superintendence of "Parker's Agent"—it is not true that any wheel or wheels have been constructed, such as described by Mr. R. C. M., on Rock River, under "9 feet head, 284 inches area of issue and gate corresponding; nor is it true that any such wheel has been constructed on any other stream in Illinois, and the only wheel that has been constructed of the character referred to on Rock River is on a head of 4½ feet, the issues and gate 450 inches area, and it ground 15 bushels per hour instead of six (as R. M. C. informs the public,) and the discharge of water from these wheels may be easily calculated by Parker's tables, which millwrights, like R. C. M., "condemn for not understanding them," and who do not wish to try to understand them.

I will now leave the readers of your valuable journal, who have read the article of R. C. M., to form their own conclusions in the matter. J. S., I have no doubt, is fully competent to relieve R. C. M. of all ignorance on the subject of the principle of combining percussion with re-action in the same wheel, which "has not failed to obtain favor in high places."

Yours, truly,

E. C. A. C.

Illinois, April 24, 1850.

Plank Roads in Alabama.

There are now being constructed in Alabama a chain of Plank Roads from the Tennessee River to Mobile Bay, a distance of about 330 miles, running nearly from one extremity of the State to the other, north and south, through its heart and centre, via Montgomery and Wetumpka. When these roads are finished (which will be within two years) a person can leave Nashville, via Nashville and Chattanooga Railroad to the Tennessee River, thence by Plank Road to Montgomery and Mobile,—arriving in New Orleans in 56 hours. The plank road from Montgomery to Mobile Bay (called the South Plank Road) will be finished in 15 months, when this road is in operation, it will shorten the journey to New Orleans two whole days. It will be a great accommodation to the public and promises a rich harvest to the proprietors.

Fulton.

A gentleman, now an honored representative of one of the Congressional Districts of New Jersey, visited Robert Fulton when he was in Paris. The man whose genius has made a new era in civilization occupied a small and obscure room. The embodiment of the expansive power of steam was confined within narrow limits. Like Diogenes in his tub, Fulton was almost lodged in the circumference of a cylinder. On the wall of his habitation was sketched coarsely, but distinctly, the plan of a steamboat. "There," said Fulton, as he pointed it out to his visitor, "there is the image of what will yet traverse the river and the ocean." And wherever he went this image of the future he carried with him. If he did not sketch it on the wall it was written in his mind. He saw it as he walked along; he thought of it; he dreamed of it; and, at last, he acted it. The taper of his lone room illumined the world.

Lumber Trade in Maine.

The Penobscot is free from ice on one day, its vessels like birds are seen moving on its waters the next. The Bangor Whig has the following upon the quantity of lumber likely to find its way to market:

"The quantity cut on the East Branch, above and below the Telos, this season, is about forty millions. On the West Branch, as estimated by the West Branch Log Driving Company, about thirty-one millions. On the Mattawamkeag, about thirty million; and on the Passadumkeag, about ten million. The old logs now on hand, cut on the Mattawamkeag last season, amount to about thirty million; add to this from ten to fifteen million cut in other places, and then deduct ten million which will not get in, (as small a quantity as has ever been known to lie back,) and we have, new and old, in round numbers, about one hundred and fifty millions, for his year's stock.—There is, in boards, about eight millions, a portion of which are outs, (scoots and fours).—This is less than the amount surveyed last season,—while year before last, the survey amounted to about two hundred and sixty million. Taking into consideration the quantity, compared with other years, and the barrenness of the markets in Massachusetts, Connecticut and Rhode Island, there is no doubt that the prices of lumber this season will be well sustained."

Lifting Heavy Persons.

One of the most extraordinary pages in Sir David Brewster's Letters on Natural Magic, is the experiment in which a heavy man is raised with the greatest facility, when he his lifted up the instant that his own lungs, and those of the persons who raise him, are inflated with air. Thus, the heaviest person in the party lies down upon two chairs, his legs being supported by the one, and his back by the other. Four pesons, one at each leg, and at each shoulder, then try to raise him—the person to be raised giving two signals, by clapping his hands. At the first signal, he himself and the four lifters begin to draw a long full breath, and when the inhalation is completed, or the lungs filled, the second signal is given for raising the person from the chair.—To his own supprise, and that of his bearers, he rises with the greatest facility, as if he were no heavier than a feather! Sir David Brewster states that he has seen this inexplicable experiment performed more than once.

Effects of Proportion.

It is singular says Count Stolberg, in his travels, that both the outside and the inside of St. Peter's Church, at Rome, although at the first aspect they fill the heart with a sublime sense of majesty, do not appear so vast as they are in reality. Some critics affirm that this is a defect in the structure, others maintain that the gradual development of this grandeur, though it does not immediately convey to the eye an idea of its extraordinary magnitude, is but a consequence of its perfect symmetry, and I believe that these last are in the right. You must frequently have remarked that beautiful human figures, as well male as female, appear less than those of equal size, that are not so well formed. I have often made the same observation on trees. The finest oak I ever saw did not appear to me so tall or so large as others around it which were less beautiful, and which, in fact, were less in size.

Rail-car axles are proved by English experience to become chrystaline only at a point just adjoining the wheel; the rest of the axle maintaining its fibrous structure unchanged by the action of rotation and percussion.

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New Inventions.

Experiments with Water Wheels.

We have a letter before us of a respectable gentleman in Ga., to a mercantile gentleman of high standing in this city, wherein it is stated that experiments with a Morris Wheel of 12 inches diameter, with apertures of buckets 16 inches, and a Reuben Rich's wheel of the same diameter—and 18 inches aperture, the Morris wheel discharged a certain quantity of water from a point in a 5 by 10 feet cistern, when stationary, in 75 seconds; when running, in 20 seconds; while the Rich wheel took 137 seconds to discharge the same water, while stationary, and while running took 145 seconds, thus reversing the order of acting. An aperture in the cistern of 30 inches, discharged the same quantity of water let on to the wheels in 40 seconds. This test shows that the Rich wheel discharged something over 1-3rd its openings—the Morris two and a half times its openings. The Morris wheel, therefore discharged more than five times the water of the Rich, even with smaller apertures. We should like to know the value of power in them both, by the test of a dynometer. The Rich appears to be a great wheel. The experiments were made at Columbus, Ga.

American Inventions in England.

Within a short time, a number of valuable American inventions have been patented in England, and there would be more of them, if the British fees were reduced to a decent price. Whenever this is done, the fees for British citizens will be reduced here. It would be well if this were done, and something to back it up by securing the patent to the *inventor* alone. England would thus show that justice as well as interest ruled her councils.

We see by a recent number of the London Patent Journal, that Mr. A. S. Lyman, of this city, whose patent Steam and Water Guage appeared in Vol. 4, page 308, Sci. Am., has secured a patent for the same in England. This Guage is employed on the steamship Atlantic, and it is to be used on all the Collins' line of steamships.

Charcoal Melted.

The possibility of melting charcoal has at length been satisfactory proved by the experiments of M. Despretz, of Paris. Up to the present time, chemists have considered this an impossibility; M. Despretz, however, not only melts this refractory substance, but solders one piece to another, and even volatilizes it. The heat to effect this purpose is generated by a powerful galvanic battery; the light and heat envolved is so great that, even in approaching it, only for an instant, there is danger of violent headache and pain in the eyes. To avoid this the operator conducts his experiments under the shade of thick blue glass. Platinum clippings, and other metals difficult to fuse, are readily converted into a solid mass. This will prove of great service in the arts, and we hope that he will be able to make diamonds so as to destroy all the attributable value of these baubles.

Paine's Hydro-Electric Light.

We learn by our Worcester exchanges that Mr. Paine is now exhibiting his *New Light* made from water decomposed by electricity. He employs the gas both for cooking, warming his house, and for illuminating it. The expense of the machine that does all this, is stated to be six dollars per annum, as interest on it. He invites all to witness the accomplishment of what he has asserted he could do through our columns, and the Aldermen of the city of Worcester have visited his house, and were both astonished and satisfied with what they saw.

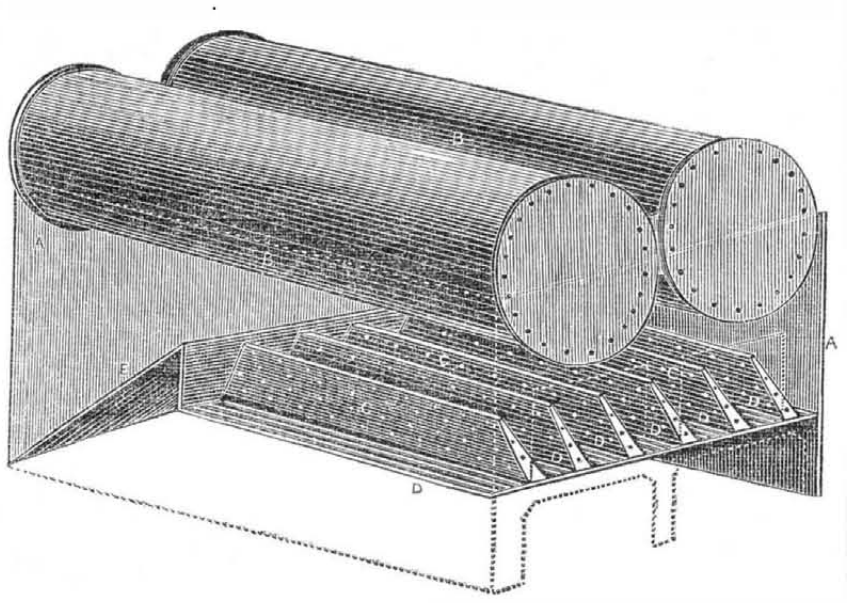
Since Mr. Paine published his last letter in the Scientific American, we have had many enquiries requesting more information about it, as there were some things stated which went to prove that water was not composed of hydrogen and oxygen, and that there were no such thing as two separate gases termed hydrogen and oxygen, but that water is composed of *something* (*not known yet*) in combination with positive and negative electricity. These are the inferences drawn from his last letter.

Improvement the Manufacture of Sugar.

As we have received some communications, lately, enquiring whether we know the whole of the Melsen process of making sugar, or not, we hereby publish all that we know about it:

"As the cane is being crushed in the mill, a small quantity (we cannot tell the exact amount) of the sulphite of lime is intimately mixed with the juice, to prevent the atmosphere from affecting it, when the juice may be kept for some time, and submitted to the subsequent operations without any danger of fermentation. The juices may be evaporated by slow means, in shallow dishes in the atmospere, and by filtration, the whole of the sugar is obtained, and of a superior quality, as there has been no fermentation.

MORSE'S AIR DISTRIBUTOR.



This apparatus is the invention of L. Morse & Brothers, of Athol, Mass., who are also the patentees. The patent was re-issued last year and its grand object is for burning saw dust and tan bark instead of wood, under steam boilers, thus making it exceedingly valuable for saw mills, tanneries, dye works, &c. The improve is in a peculiarly constructed grate to supply the bark on saw dust with heated air on all sides, distributing the air to the materials to be burned in such a manner as to cause the substances spoken of to burn well, which otherwise they could not do, and to dispense with the burning of slabs in saw mills, and cord wood in tanneries. This figure is a perspective view with one side of the furnace removed to show the inside construction and arrangement. A is the back wall of the furnace. E is an inclined plate behind the ribs to the back of the furnace. The sides project below grate bars, and the ash pit holes are represented by dotted lines. B B, represents two cylindrical boilers. D D D, are the grate bars, but the novel features are hollow perforated chambers, C C C C, placed about eight inches apart on the grate bars, the whole breadth of the furnace, and of the same length as the grate bars, about 4 feet. They are about one foot in height, and are of a conical form from the base to the vertex at top. These hollow elongated conical chambers are distributors, and made of iron one inch thick and perforated with holes about four inches apart, and ¾ of an inch in size. There is about ⅜ of an inch space between the bars, and the whole distributor is cast in one piece. By this engraving every person will get a distinct and perfect idea of what "Morse's Air Distributor" is in principle and construction, and will see how applicable it is for the purposes stated. The air passes up below through the grate bars, D, and also through the grate bars which form the bottom of the chambers, C, and passes through the perforations on both sides up to the top, and by the liberal supply of oxygen thus afforded, support the combustion perfectly. By the furnace being thus divided off, and such an abundant supply of oxygen provided, the burning of substances impossible to be accomplished in common furnaces, is hereby accomplished in a most beautiful manner, for the perforations of the chambers act like tubes to keep up a current of supply air, the very thing wanted to enter the bark and such kind of substances, to make them burn freely. We might produce a great number of certificates that we have seen, testifying to the value and utility of this invention, by parties who have been using it for a long time, some with saw dust, and some with tan bark, but the utility of it will be apparent to all. Messrs. Morse rely upon its merits for the sale of Patent Rights and all information may be obtained from them by letters (*p p*) addressed to Athol, Mass.

Morteotype.

This is a name applied to a new application of Daguerreotype. It is the embedding of the likeness of the form and features of the departed upon the tombstone, and making it impervious to the raveges of time, by use of a peculiar kind of cement, which makes the pictures as durable as the marble itself. It is the invention of Mr. J. H. Whitihunt, a gentleman who has devoted a great portion of his life to improvements in the art of Daguerreotyping.

[We copy the above from an exchange but cannot tell where Mr. Whitihunt resides nor any thing about his process. We expect that it is a real "*Monteotype*."

Curious Discovery.

The Pittsburgh Gazette, says:—An immense bed of a soft substance, with many of the peculiarites of soap stone, has been discovered about three miles beyond Brighton, on the line of the railroad. It is of about the consistency of tallow, though not as brittle, appears to have no grit, and can be shaved with a knife with as much ease as a piece of cheese. It is a dark drab color. The bed is five feet thick, and the contractor, in making his excavations, has found it a very troublesome substance. He cannot break it or blow it up, o quarry it, on any of the ordinary processes.—He is trying to shave it off in thin slices with a plough.

Tunnelling through the Alps.

To complete the line of Railroad from Boulonge, in France, to Venice, in Italy, the snow-capped Alps would have to be pierced with a tunnel through their rocky sides. After five years study on the subject, the Chevalier Henry Maux, has reported on the project—its feasibility and practicability. The Sardinian Government has taken up the scheme, and in all likelihood it will be attempted if not completed. It is expected that it will take five years to finish, and will be about seven miles long.

Improved Bench Hook for Carpenters and Workers in Wood.

Mr. W. V. Kean, of Worcester, Mass., has invented a very excellent and new improvement on the above mentioned tool, for which he has taken measures to secure a patent, and which will certainly come into general use. The improvement consists in having the hook made on the top of a screw bolt, with four edges or sides, one for pattern makers and the others with edges suitable for wood of different hardness. Each edge can be changed at pleasure by a spring, and the surface of the hook is so arranged in the cylinder in which it turns, that whatever edge is turned to the wood, the back has a downward inclination. If the plane, therefore, passes over, no harm is done. This tool is set with its cap flush in the bench, with screws, and can easily be put in and taken out. It gives us pleasure to record every improvement in tools that have a wide spread application.

Preparation for Coating Ships.

We see by a patent recently granted in London, to Adam Yule, Dundee, mariner, and John Chanter, of Lloyds London, that there is still a great variety of opinions respecting the best coating for ships, and many no doubt appreciate the benefits of any material that would supersede metal sheathing, as a matter of economy. The two gentleman spoken of above, believe no doubt that they have discovered the very thing desired for this purpose. It is made of ten quarts of bullock's gal, mixed with 30 pounds of plumbago in powder mixed along with some salt water to form a paint to be applied with a brush to the outside of the vessel.

Another composition is to mix 30 pounds of plumbago with 3 lbs. of arsenic, along with naptha or pitch, and apply it to the outside of a vessel with a brush. Another composition is 1 lb. of arsenic, 3 lbs. of plumbago mixed with tallow in a heated state and applied with a brush. Whether all or any of these are first rate compositions for coating vessels to prevent marine deposits, we cannot tell.—We give them for what they are worth, only, this much we can say, if they are not good compositions the patentees have paid for the whistle. Experiments can be easily tried, and, from a knowledge of the nature of the materials, we should judge that there is merit in any one of them to demand a trial. It has always been a desirable object, to discover some composition that would effectually protect iron ships from the injurious effect of sea water and a sea atmosphere. Our Philadelphia Line of Coal Iron Steamers, were early ruined for want of a good protective coating. Red lead has always been considered the best substance and it no doubt is for that purpose, but then it must be put on aright, or it will not answer. The way to do this is to clean the iron well before the paint is put on, then make the paint (red lead) very thin and give it three successive coats, being careful to let every one be perfectly dry before the other is put on. Three pieces of iron were sunk in the sea for two years, one was coated as we have described, and the other two with other compositions, and when they were taken up, the piece coated with the red lead was uninjured while the other two pieces were honey-combed. Red lead is the best paint for using on all kinds of iron exposed to the weather. The first coat may be of red lead and the top coat may be of some more attractive colour.

New Process of Smelting Iron Ore.

Sir F. Knowles, in the London Mining Journal, proposes an entirely new process for smelting the ore and saving fuel, the loss by the common modes being made by him at 81 per cent. His plan is to crush the ore and put it in gas-proof reverberatory ovens. The fuel is to be decomposed in a separate chamber and the vapour of carbon passed into the heated mass of ore; so that the oxygen of the ore, uniting with the carbon, will leave the pure metal only behind when the ore is an oxide of iron. When it is a carbonate of iron he would mix the richer ores and allow their oxygen to combine with the carbon of the leaner ore, thus saving fuel. After the necessary chemical effect is secured by the exchange and combination of the gases, then the ore is expected to be reduced at once under a strong blast in shallow hearths, any needful flux being used at this last process.

Shingle Machine.

We are informed that Mr. S. D. Paxton, of Fairfield, Va., has taken measures to secure letters patent for improvements in machines for cutting shingles, which promise to be valuable. We are not at liberty to describe the nature of the invention. Mr. Paxton being now engaged in experiments for the purpose of perfecting it.

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Scientific American

NEW YORK, MAY 11, 1850.

Foreign Forgeries about American Inventions.

WHO INVENTED PARKER'S WATER WHEEL?—I observe in the last number of the Civil Engineer and Architect's Journal, an article copied from the American Franklin Journal, giving an account of what is there called "Parker's Water Wheel." The improvement claimed in this article is the invention of Koechlin & Co., of Mulhouse, and is patented by them. A description, accompanied with drawings, and several valuable tables, containing the results of a series of experiments made upon two of their wheels, to determine their effective working power, was read at a meeting in August, 1843, of the Societe Industrielle. This description, and tables, together with the report of the committee appointed to investigate the merits and conduct the experiments, is published in the Transactions of the Society, vol. xviii.

One would suppose that Brother Jonathan would rest satisfied with getting the benefit of all the improvements that take place in machinery and manufactures on this side of the Atlantic, without laying claim to be the inventor of them also. J. G.

Glasgow, Feb. 19, 1850.

[The above is from that excellent work, the "Glasgow Practical Mechanic's Magazine." It is a very unfortunate thing, that our friends across the water have not the good sense to inform themselves better upon the subject of American Inventions. They have such a dogged conceit in themselves, that we must place them in the position of Nathaniel, saying (whenever an American invention is named), "Can any good thing come out of Nazereth?" Now the man who penned the above J. G.—(for J. *Green*, we suppose,) is exceedingly ignorant of the subject. Instead of Brother Jonathan claiming what does not belong to him in this case, he endeavors to rob Jonathan of that which justly belongs to him, and such kind of flings the Glasgow Practical Mechanic indulges in too often. The Parkers secured a patent for their water wheel in 1829, the invention then being one year old. The invention was afterwards carried to France, and Messrs. Koechlin & Co. appeared before the *Societe Industrielle* with borrowed plumes from Yankeeland, as many Europeans now do, being too weakly proud to acknowledge that the Young Republic can teach them any thing. But what nation has surpassed America in Invention? Not one. The Cotton Gin, Cut Nail Machinery, Machines for Making Pins, Machines for Making Cards, the first successful Steamboat, the Machine for Planing Wood, the best Machine for Turning Irregular Forms on Wood, and a great number of other very useful improvements on machinery that we might name, but the inventions mentioned are distinct and prominent ones, and of undisputed American origin, and it will not do to claim Z. & A. Parker's Water Wheels as a French invention of 1843, fourteen years after it was patented in America.

To conclude in the words of the above letter, one would suppose that Brothers *Parlez Vous* and Sandy would rest satisfied with getting the benefit of this American Invention, without claiming its paternity.

WHO COMBINED PRESSURE ROLLERS ON PLANING MACHINES, AND FIRST EMPLOYED CUTTER WHEELS FOR TONGUEING AND GROOVING IN PLACE OF SAWS?—We are not done with the Glasgow Practical Mechanic yet. At one time it charged the Scientific American with bringing forward British inventions with Yankee names tacked to them. It insinuated that we would find honesty the best policy at last, but we always consider that honesty is the best policy *first*, and bide our time to prove it so at last, and that time has now come round. In the same number out of which the above is taken, there is a description of a new Planing Machine, for planing flooring boards, invented by a Mr. McDouall, of Johnstone, a place about ten miles from Glasgow. In describing the machine, he goes into a history of Planing Machines (British), being apparently ignorant of any such kind of machine being used in this wooden country. As this history is valuable to our people, in bearing directly upon the Woodworth Patent, we will briefly state its leading features. It first mentions the improvements made by Gen. Bentham and Mr. Bramah, and then states that "it was not until 1827 that machines for working flooring boards, and other boards, were brought into practical use by an improved machine, invented and patented by Mr. Malcom Muir, of Glasgow, which served as a model for all succeeding makers." This machine is described as having a rotary adze for planing, and tongueing and grooving with saws. This is correct, for we have Muir's patent before us. Now this was a defective machine. It wanted feeding pressure rollers, and cutter wheels in place of saws for tongueing and grooving, to make it perfect. It says, Mr. McDouall added these improvements. Now, as Muir's Patent has been somewhat pitted against Woodworth's—this history states that Mr. Muir's machine fed in the boards by an endless chain with dogs on it, and Mr. McDouall, who, in 1834, fitted up one of these machines in Manchester, England, found that such a mode of feeding was totally unfit for their boards, and he added pressure feeding rollers, 12 inches in length and 10 in diameter, which effectually answered the purpose. "The next step in improvement," says the Journal, "was employing rotary cutters in place of saws, for tongueing and grooving—for which Mr. McDouall took out a patent for Ireland in 1836." Now it happens that Wm. Woodworth, of America, took out a patent for this very improvements in 1828, just six years before Mr. McDouall made his first improvement and eight years before his second. So much for Brother Sandy both using and claiming Brother Jonathan's inventions.

We have now stripped the breeks of the Highlandman and he must be content with his *kilts*. Two important American inventions have been claimed by European Journals, and aspersions thrown upon the American character. Now upon their own authority of dates, let us refer to our authority of dates. In the Franklin Journal, page 199, Vol. 7, is Woodworth's patent claim for 1828, and on page 405, Vol. 8, same Journal, is the claim of E. Emmons, for the pressure feeding rollers, Sept. 10th, 1829, and in the same work, Vol. 9, page 33, is Parker's claim for his Water Wheel Patent of Oct. 19th, 1829. These American inventions have created revolutions in their several departments, and no wonder others would like to rob us of the honor, but it is a good thing that we have a Patent Office; and while we have eyes to see and ears to hear, the Scientific American will guard the honor of our inventors, presuming nothing upon hearsay or prejudice, but resting our cause on truth and candor. It is true that we are greatly indebted to Europe, so is Europe to America. It is the fault of Europeans that they do not know us so well as we know them. Americans are not known in Europe, but Europeans are our door neighbors here. They think we are living like Indians, while New York is larger than any city in Britain except London.

Planing Machines--Important Decision of the Supreme Court of the U. S.

DECEMBER TERM, 1849.—No. 209.—Jacob P. Wilson, Complainant *vs.* Daniel Barnum—On a certificate of division in opinion, from the Circuit Court, U. S., for the Eastern District of Pennsylvania.

Mr. Chief Justice Taney delivered the opinion of the Court. This case comes before the Court upon a certificate of division, and has been submitted on printed arguments.

The plaintiff, who claims as assignee of what is generally called the Woodworth Patent, filed a bill in equity praying an injunction against the defendant, to restrain him from using a certain machine, in which, as the complainant charged, boards were planed, tongued and grooved in the same manner as in the Woodworth machine; the machine of the defendant operating in the same way in every respect as the one for which the complainant held the patent.

The defendant, in his answer, denied that his machine was substantially alike, and upon the plan of the Woodworth machine. Other defences were also taken in the answer. But it is not necessary to notice them, as they do not concern the question certified.

A great mass of testimony was taken on both sides in the Circuit Court, and models and drawings produced of the two machines, all of which have been sent up for the examination and consideration of this Court, with the certificate of division.

On the final hearing of the case, the Judges of the Circuit Court differed in opinion on the following question:—

"Whether, according to the true construction of the Woodworth Patent, as amended, the machines made or used by the defendant at the time of filing the bill, or either of them simply, do or do not infringe the said amended letters patent?"

The question thus certified is one of fact, and has been discussed as such in the arguments offered on both sides. It is a question as to the substantial identity of the two machines, and its decision must depend upon the testimony of witnesses; the examination of the models and drawings, or of the machines themselves; and the application of mechanical principles and combinations which the Court could learn only from the testimony of persons skilled in the science of mechanics.

The jurisdiction of this Court to hear and determine a question certified from the Circuit Court, is derived altogether from the Act of 1802, ch. 31, sec. 6, 2 stat. 159—and that act evidently gives the jurisdiction only in cases where the Judges of the Circuit Court differ in opinion on a point of law. The language of the whole provision upon this subject so clearly requires this construction, that it is unnecessary to comment on it, and it would be utterly inconsistent with the well known and established proceedings of Courts of Equity as well as Courts of Common Law, to take out of a case, during its progress, a single question of fact, and send it here with the evidence upon that point only, for the final decision of this Court. In the case before us a great number of facts must be ascertained and determined from the evidence, before a final opinion could be formed upon the question certified.

Besides, this Act of Congress has been in force for nearly half a century, and has been repeatedly acted on in this Court, and it has uniformly received the construction we now give to it. In the multitude of questions which have been certified, this Court has never taken jurisdiction of a question of fact. And in a question of law it requires the precise point to be stated, otherwise the case is remanded without an answer.

The question now certified being one of fact, we have no jurisdiction; and the case must therefore be remanded to the Circuit Court, to be there proceeded in as law and justice may require.

Solicitors for the Complainant—Governor Seward, Mr. Latrobe, S. V. Smith and H. G. T. Campbell.

For the Respondent—Wm. L. Hirst, Wm. W. Hubbell, and E. W. Stoughton.

In this case neither the Jury nor the Judges could agree, and the case was sent up to the Supreme Court on the motion of the Complainant's Counsel, and at the time, we stated that the question belonged properly to a jury. The decision of the Supreme Court, of which the foregoing is a verbatim copy, is important as a precedent to that point. There will have to be another Jury trial, in the meantime the injunction has been dissolved on terms.

Scientific Knowledge.

Scientific knowledge has often been neglected from an idea that it can only be attained by individuals who previously possess considerable information. There cannot possibly exist a greater mistake; for nature is so simple in all her operations that they can be rendered as intelligible to the mind of the humble mechanic or unlettered peasant, as to that of the haughty peer or the most learned philosopher. It is certainly true, that in former times, partly from ignorance or the defect of the English language, and partly from an ignoble wish to fetter the progress of the human mind, the most simple truths were studiously obscured; but the curious signs and figures—the harsh and disjointed phraseology—the crude and complicated technical terms which were then in general use, have now been done away with, and the pathway to science is at the present day open and easy of access to all. In this age of intellectual excitement, many means have been contrived to extend the blessings of education; and schools of art have been instituted, and popular lectures judiciously delivered, with a view of communicating, in the most easy and familiar manner, those principles of science which explain the various phenomena of nature, and the different processes of art by which we can supply the necessaries and the luxuries of life. Science admits of two general divisions; the first comprehending an investigation into the nature and operation of our own minds; the second, into the various properties and conditions of matter, or the objects which we perceive in the external world. It is by a strict examination into these that we become acquainted with the laws of nature, without some acquaintance with them we must be continually passing over many objects and events unnoticed, that would otherwise excite the greatest possible interest and admiration. Nor is this all; for when any event does occur, of so uncommon and striking a kind as to attract our attention, and so to awaken our ignorance, if we are unable to explain it on fixed principles, we must fall back upon the mere suggestions of fancy, which, as all history has proved, lead to the most absurd superstitions. Thunder and lightning, comets, meteors, northern lights, rainbows, and indeed every phenomenon of nature has in its turn excited those superstitious feelings which appear natural to man while in a state of ignorance.

In ancient times thunder and lightning were regarded as occurrences beyond the common course of nature. Under the Mosaical dispensation, the Jews were accustomed to open the doors and windows of their dwellings during a thunder storm, in the expectation of the promised Messiah making his appearance amidst this war of the elements. The Roman Catholics, in many districts of Germany, toll the bells of the churches during the continuance of a thunder storm; and in Athens, when a person was struck dead by lightning, the spot on which the accident occurred was enclosed, and an alter raised for the people, offering up sacrifices to their gods. The superstitions of the ignorant, which can bend to such customs, have from the rapid advancement in our own days of the knowledge of science, not only been dispelled, but we have contrived, by a very simple expedient, to rob the cloud of its lightning. Comets have, from a very early period, been regarded as predicting the most dismal calamities. The Romans attached undue importance to the comet which appeared a short time previous to the Augustan war, and to that which attended the battle of Pharsalia; neither has Josephus, the celebrated Jewish historian, been sparing of them at the destruction of Jerusalem. We are happy that such is not the condition of the working men of the nineteenth century. The schoolmaster is abroad—and a *cheap* press has wrought wonderful changes.

The London Patent Journal and Inventors Magazine.

This is a weekly publication by Messrs. Barlow & Payne, 89 Chancery Lane, London. It is the best Journal published in England for a general view of all the British Patents issued. The Editors are candid in all their remarks respecting American Inventions, and its tone is decidedly of a very superior cast. In addition to an abstract of the Patents, it contains many lectures of scientific men upon useful subjects and the proceedings of the Scientific Associations. It also contains a great mass of the most useful and interesting matter for mechanics and artisans—sterling stuff. We recommend this journal to all American mechanics, and those who are residing among us who have crossed the Big Salt Lick. Its price is only $7 per annum. It is published every week, and commenced its 9th volume on the first of last month. We will forward subscriptions.

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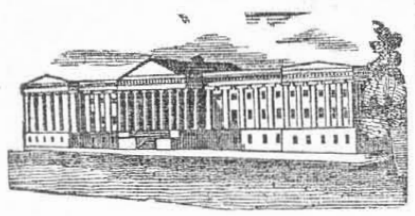

☞ Our weekly List of Patents and Designs contains every new Patent, Re-issue and Design emanating from the Department, and is prepared officially, expressly for the Scientific American, and for no other paper in the city, consequently other journals are obliged to wait the issue of the "Sci. Am." in order to profit by the expense to which we are subject, and of course must be one week behind. Those publishers who copy from this department in our columns, will, in justice to us, give proper credit for the same.

LIST OF PATENT CLAIMS

ISSUED FROM THE UNITED STATES PATENT OFFICE,

For the week ending April 30, 1850.

To C. Austin, of Concord, N. H., for improvement in Reed Musical instruments.

I claim to make the reed opening, directly through the wooden sounding board, in combination with the applying of the reed directly to the same, and fastening it to the sounding board; instead of using any metallic frame for the opening and reed, as has been the customary method of making and constructing such instruments; my said invention, by dispensing with the said metal frame, not only producing a remarkable improvement in the tone, but a great saving in the cost of construction of an instrument.

To A. H. Brown, of Albany, N. Y., for coupling for pipes and hose.

I claim the construction of couplings for hose or tubing, by forming one part thereof into a hollow cylindrical cup or box, having wedge shaped flanges of metal inside and next to the edge thereof and by forming the other part of the coupling, of a flange equal in diameter to the first described coupling, having its face edge ground with the edge of the first coupling to make a tight joint, with a cylindrical ring (whose bore is equal to that of the tubes to be coupled) projecting from said flange, concentric with it, and diameter just large enough to pass between the flanges of the cup or box, and to reach just to the bottom of the cup, whose bottom face, with the outer face of said ring are ground together to form a tight joint. Also said ring having on its periphery at the outer edge, wedge shaped flanges similar in form and angle to the flanges of the cup or box, and so arranged as to pass between ground surfaces of the couplings together firmly.

To C. Broyles, of Greene Co., Tenn., for improvement in apparatus for drawing water.

I claim the plan herein described, of bringing water upon a level, over a hill, or in any situation where the fountain is not higher than where the water is wanted for use, viz, I claim the combination of the weight and its cord, pulley and ring, the whole being with the cord by which the bucket is drawn and the hook or catch upon the carriage, the whole being arranged substantially as described, for the purpose of drawing the empty bucket from the place of discharge over the highest point of the way to the spring.

To S. E. Crocker, of Boston, Mass., for improvement in machines for holding and dressing slates.

I claim the endless series of clamp carriages substantially as herein set forth, to hold and carry the slates beneath the cutters.

To M. R. Dudley. of New Orleans, La., for improvement in Grain dryers.

I claim the construction and arrangement of the apparatus as herein described, by which a stratum of air is forced into a case inclosing the grain cylinder where it protects the grain from the direct action of the heat from the fire and is their heated and conveyed through the grain so as to carry off the moisture therefrom substantially in the manner and for the purpose set forth.

To H. Elliot, of Manchester, N. H., for improvement in gearing for regulating speed.

I claim the employment of the wheel or pulley, in combination with the cone and governing shaft, substantially in the manner and for the purpose herein set forth.

To J. M. Keep, of Bath Me., for improvement in Gages for spreading Plasters.

I claim the combination of the adjustable expanding and contracting frame with the adjustable, expanding and contracting bed, the several portions of the combination being arranged and constructed substantially as herein set forth.

To J. Knowles, of Buffalo, N. Y., for improvement in let-off motion of looms.

I claim the arrangement of the yielding weight and the stationary whip rolls in connection with the let-off motion as herein set forth, whereby the texture of the cloth is rendered more uniform than has been heretofore done while it can be varied at will.

To E. H. & S. E. Parsons, of Wilkes Barre, Pa., for improvement in hanging saws in saw mills.

We claim the method of hanging a mill-saw, from guides in advance of its front edge, which sustains the whole pressure caused by the advancement of the wood on the carriage against the saw teeth, the plate of the saw swinging on the advanced guides as pivots, so that when cutting it is kept running in a plane passing through the guides in the direction in which it blows.

To S. Peck, of New Haven, Conn., for improvement in holding daguerreotype plates.

I claim the constructing of a movable holder for securing daguerreotype plates by pressure from within outwards while the plates are being polished, burnished, buffed, or cleaned.

I also claim as new the construction or arrangement of a holder composed of two parts with springs between the parts pressing them from within outwards against the bent edges or corners of the daguerreotype plate, and secured from contraction by a button or wedge, substantially as the drawings. And in combination with such a holder, I claim the bending of the edges or corners of the plate so as to secure the same to this holder.

I also claim the adaptation of a daguerreotype plate with its edges or corners bent as shown in the drawings to a movable holder constructed substantially as above described.

To B. Rowe, of Albany, N. Y., for improvement in apparatus for splitting and stretching leather.

I claim the construction of a machine performing the business of rolling, splitting and stretching leather, at one operation as set forth, viz., the following combination of machinery—one roller, driven by the motive power, having another roller, moving about it, between which two rollers, the leather is to be compressed, the upper roller running free upon its own axis, which is fixed in a vibratory frame, in order that said upper roller may be adjusted thereby to any variable or determinate pressure upon the leather, by proper power applied to said frame. A second roller placed a short distance in front of and parallel with the first named one, running free on its own axis. A smaller roller, (placed in a second vibrating frame, similar to and adjustible like the first mentioned frame) running above the last mentioned roller, to perform the functions of compressing the leather and holding it firmly to receive the cut of the knife. A knife supported by strong springs and placed just in front of the last mentioned pair of rollers, so as to act upon the leather directly as it leaves the rollers.

A movable frame to carry the leather to be operated on, moved by a gearing connecting it with the first roller, and giving it a certain proportional rate of movement compared with that of the roller, by which the quantity of stretch to be imparted to the leather can be regulated. An apparatus for guaging the knife to cut the leather to a given thickness, consisting of a pair of eccentrics, on the ends of a shaft running parallel with the knife, and operating upon each end of it equally as the said shaft is turned round, with an index plate and set-lever, to regulate and fix the same during the operation of the machine,

To A. N. Severance, of Cherry Valley, O., for improvement in vats or press-boxes for cheese.

I claim producing cheese vats with a movable joint which is operated by a crank or lever to enlarge and diminish the size of the vat substantially in the manner and for the purpose herein set forth.

To W. H. Trissler & E. Brecht, of Fairview, Pa., for improvement in roasting coffee.

We claim the application of steam or vapor to grains of coffee, just previous to subjecting them to the action of a dry roasting heat, within an apparatus constructed and operated substantially in the manner herein set forth.

To W. Van Anden, of Poughkeepsie, N. Y., for machine for making wrought iron railroad chairs.

What I claim is 1st, the double or parting die, substantially as described, parting by means of a joint at the top, or otherwise, for the purpose above set forth.

2ud. The vertical shears and benders, working in connection with the double die, in such manner as to cut and form the lips of a chair at one operation, substantially as described

3rd. I also claim the combination of dies, shears, punches, benders, and cleaners, arranged and operated in the manner and for the purpose above set forth, or any similar arrangement wherein the combination is essentially the same.

[This invention is to be secured in England also. It is an important one.]

To B. M. Van Der Veer, of Clyde, N. Y., for improvement in board and log rules.

I claim the combination of the log table and board rule, in the way and manner, and in the form described and illustrated herein. I do not claim the log table or the board rule, *per se*, as my invention.

To C. Warner, of Louisville, Ky., for pipe coupling.

I claim fastening together the abutting ends of two pipes by forcing a sleeve of some hard substance over a belt of a softer substance which envelopes the seam and is thus compressed between the sleeves and the pipes.

To F. Wright, of Indianapolis, Ind., for improvement in the rubbers of smut machines.

I claim in combination with the feeding and rubbing cylinder, constructed and operated substantially in the manner and for the purpose described.

To J. Wurfflein, of Philadelphia, Pa., for method of preventing accidental discharge in the Prussian Gun.

I claim the guard, to prevent the discharge of the arm when all the parts are not in proper position, constructed, combined, and arranged with the arm, and operated substantially in the manner and for the purpose described.

RE-ISSUES.

To J. L. Mott, of New York, N. Y., for improvement in cooking stoves. Patented August 22, 1848. Re-issued April 39, 1850.

What I claim is, first, making the back of the oven of a series of vertical flue tubes in the bottom, substantially as herein described, to equalize the heat of the oven.

Second, I claim lining the inside surface of the bottom plate of the stove, with some refractory earthly cement or polished substance, as described, in combination with the series of flue tubes constituting the back and bottom of the oven, for the purpose and in the manner substantially as described.

Third, I claim making the front part of the top plate separate from and attached to the top plate by bolts or otherwise, substantially as described, when combined with the sunken connecting piece, whereby the cracking consequent upon over heating and unequal expansion and contraction of that part which is exposed to a high temperature, is prevented.

Fourth, I claim the combination of a fire-box made with a grate or openings for draught in the bottom thereof, substantially as described, with the coal feeder having an aperture or apertures for draught, between it and the upper edge of the fire pot, substantially in the manner and for the purpose above described.

I am aware that a series of hook-formed wipers playing between the grate bars and arranged on a shaft have been heretofore patented for cleaning the grates of an iron furnace but these can only be turned in one direction' by reason of their hook form, and on this account are not practically useful. I do not therefore claim broadly the use of cam formed wipers unless they are so formed that they can be operated in opposite directions, but I do finally claim in combination with a grate, a series of eccentric plates or cam formed plates of equivalent form arranged on a shaft so located relatively to the grate bars as by the vibration of the shaft in either direction, the said plates shall play between the grate bars and separate and clear out cinder, slay and other hard substances, substantially as herein described.

DESIGNS.

To P. A. Palmer, of Le Roy, N. Y., for design for Stoves.

Reform of the Patent Laws.

Mr. Turney, from the Committee of Patents, in the House of Representatives, has brought in a Bill for a Reform of the Patents Laws, based upon the one adopted by the Baltimore Convention—leaving out, however, some repulsive features which we pointed out. The following are the heads of the Bill:

1. That a record of all applications for a re-issue of patents, or an addition to patents, and all disclaimers, and all the correspondence on the same, shall be kept in the Patent Office.

2. That in case of the rejection of an application for a re-issue, or an additional patent, the Commissioner shall record his reasons, and refer to the records upon which they are founded.

3. That certified copies of such reasons and records against any re-issue, &c., shall be furnished on demand, on payment of the legal fees for the same.

4. Provides for a fair hearing of any person opposed to a re-issue or additional patent, upon an invention already patented.

5. Limits re-issue, &c., to specifications and models, and declares they shall not have a retrospective operation.

6. Provides by writ of *scire facais*, for a trial by law of contested cases.

7. And for an appeal to the Supreme Court.

8. Requires three weeks advertising in two of the Washington daily papers, sixty days before the meeting of Congress, of all intentions to apply for a re-issue, extension of, or addition to any existing patent.

9. That all extensions, re-issues or additions, secured by special legislation, by fraud or circumvention, by misrepresenting to, or concealing facts from Congress, should be null and void, and fraudulent, and of no effect.

[It is not possible, we think, that this Bill will be acted on this Session, and until we know something more about the matter, we may not take up room in our columns to discuss its features. A Report will also be made by the Committee of the Senate, and as the Committee has the Bill before them, presented last Session by some true friend of the inventors, and the one by the Baltimore Convention this Session, we cannot say what may be done in the matter, but we will endeavor to keep our friends informed on the subject.

We have before us, (through the favor of a friendly inventor) the Bill presented by some inventors, last Session of Congress, and the one presented at the present Session by the Committee of the Baltimore Convention (for which we are much obliged to Geo. Gifford, Esq.), and we will give them particular attention and compare them with the Reports of the Committees, before final action is taken on them. It strikes us, that the features in the above Bill, have mighty little to say in reference to a *full protection* of inventors in their rights. But we shall see more about the matter bye and bye. We deeply lament the death of Mr. Calhoun, as he was a true friend of inventors, and always stood ready to defend their rights and to act for their just remuneration. We hope that Senator Webster will give the Bill, which has for its object the Reform of the Patent Laws, his attention, and pry into its merits. No Senator understands the principles of machinery and patents, as well as he does.

Texas Crops.

We learn from private correspondence, that the spring season in Texas has been cold and very unfavorable for vegetation, cotton has been planted and killed, and in consequence of the exceeding scarcity of seed, it is not expected that full crops will be planted. Previous to a cold storm which occured on the 27th of March, the corn was up and looked finely.

Roche, the French æronaut, recently made an ascent at Bordeaux, when his balloon hit a chimney, upset the car, and threw him into the street, where he was picked up with one broken arm and two broken legs.

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TO CORRESPONDENTS.

"A. L. T., of Mass."—Mr. J. T. Foster resides in Jersey City opposite N. Y., a letter addressed to him there would probably meet attention.

"H. W. P. of N. Y."—We have sent you all the numbers of Chapman's Drawing Book that have been issued. The delay in this, as well as in the other case, is perplexing, but we cannot help the matter. $5, received and credited for Duggan's work.

"L. K., of N. Y."—If you wish your invention brought into notice, the best thing you can do, both for yourself and the public, is to publish an engraving of it in the Sci. Am.

"S. R. V., of Pa."—You must write a great deal plainer and more to the point before we can publish your communications.

"D. P. G., of Va."—Your invention about the chimney is of such a kind that we do not see how it could be patented. The best way for you to do, is to keep the secret to yourself and erect the chimney to accomplish the object stated, and teach others how to do it for a good remuneration.

"J. R. W., of Mass."—Your subscription will now expire with No. 9 Vol. 6.

"G. H. S., of Ill."—It would cost about $2, to send the article mentioned by express.

"E. L. B., of N. Y."—We have no copies of Webster's Work on Patents for sale, and can do not know where they can be obtained.

"H. T. P., of S. C."—Your letter containing $20 came safe and the amount has been placed to your credit. It is all correct, and we send the compasses if you desire.

"A. S., of Ohio."—You cannot obtain a good work upon watch making in this city.—$1 received.

"N. S. M., of Conn."—Your Lathe was shipped by steamboat Hero last Friday (May 3rd) directed to Middletown, Conn.

"J. W. M., of Me."—We shipped to your address last Saturday, (May 4th) a concentric lathe, we were obliged to send by an Eastport brig, no vessel being up for Calais.

"W. H. L., of Miss."—We are unable to give you such information as you desire. We advise you to address Messrs. Merrick & Towne, of Philadelphia, they can undoubtedly give the full particulars.

"S. D. P. of Va."—Before we can take up an application for a patent, a model must be furnished. We have placed the funds to your credit, and await your further action. The expense of an engraving is independent of the patent fees.

"R. R., of Conn."—We do not know of any such patent as you refer to, and think there is none in existance. $1 received.

"C. J. A., of Pa."—The answer in the last paper was not intended for you, although the initials were the same. We cannot learn anything respecting the instrument you speak of, although we have made enquires of several mathematical instrument makers. Perhaps you mistake the name.

"Subscriber," Halifax."—The machines you enquired for cost from $600 to $800, according to the sizes and lengths to be made—occupy a space of 3 to 5 square feet,—power required is about 4 horse. The inventor prefers that you should address him for further particulars, we were obliged to do so in order to obtain what is here given.

"C. O. P., of Mich."—All the information you ask for can be found in No. 16 of this volume. You cannot expect to obtain a patent on anything which you know is old.

"J. P., Jr. of Mass."—We think that you can get a patent. The first thing to be done is to construct model.

"H. J., of Ohio."—Steam has been employed for the same purpose before, and no patent could be secured on the principle, but you can use it as there is no patent on it.

"G. H. E., of S. C."—There is no patent whatever on the *galvanized* chain pumps. Look out for sham patentees.

"J. S. LeC., of Texas."—The same invention as you have, is described on page 26 Mechanics Mirror of 1846. It was tried in England and was a failure.

"W. H. S., of Md.—We believe that your packing is new and patentable and that it will work well. Will write.

"J. A. H., of Ia."—We cannot give you all the information desired about bronzing powder. We have long been in search of it, and although we know considerable on the subject, still we do not know enough to warrant us in giving it as correct and practicable for your use. Mr. D.'s subscription will not expire until 52. The papers have been sent regularly every week.

"S. R., of La."—The common way for you to pursue, is to file a caveat, to secure the leading features of your invention until the rest is perfected.

"F. McL., of Pa."—The best plan for you to pursue is to talk over the matter quietly with I., and we have no doubt but you will settle the difficulty easier than by going to law.

"R. S. I., of S. C."—Your idea is a capital one, but we do not see how the rotary motion is given to the movable ring.

A. H , of La.; J. E. B., of Geo.; W. M. B., of Ala.—Your orders for Cameras were attended to and shipped this week. We hope you will receive them safely.

"N. B , of Mo."—The engraving of your Clutch, has been unavoidably excluded from our columns for some weeks. It will appear in our next—*sure*.

Money received on account of Patent Office business, since May 1st, 1850:—

S. D. P., of Va., $20; T. Z., of N. Y., $30 ; H. W. T., of Conn., $20 ; G. F. N., of Vt., $25 ; and T. H. R., of N. Y., $15.

Back Volumes Scientific American.

We are positively no longer able to supply No 1 of the present Vol.—orders for this number cannot be filled,—subscribers will please bear this in mind.

We are no longer able to supply back Volumes of the Scientific American, *complete*, of 1, 2, 3 and 4. Our readers will please bear this in mind. Of Vols. 3 and 4 we can furnish sets of about 40 numbers each (not consecutive,) for one dollar per set; of Vols. 2 and 3, sets of about 50 Nos. (containing both Vols.) at the same price (one dollar). We have parcels done up ready for mailing of all the different Vols. referred to above, and on receipt of $1, either of the sets ordered will be immediately forwarded by mail.

Notice

Whenever any of our friends order numbers they have missed—we shall always send them, if we have them on hand. We make this statement to save much time and trouble, to which we are subjected in replying, when the numbers called for cannot be supplied.

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Mahan's Civil Engineering, - - - - -	3,00
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PATENT RIGHT FOR SALE.—One half of the Right in the Gutta Percha Colapsible Oil Can, is for sale, to raise funds to bring them into market. The Patent is dated April 9, 1850. For terms apply to the patentee, DAVID G. STARKEY, at 200 Mulberry st., N. Y. 34 1*

FOR SALE.—An Iron Planer, planes 6 ft. wide, is 4 ft. high and 22 ft. long ; a vertical bar and apparatus for boring cylinders:—other machinists' tools, steam engine and shafting. If not disposed of previous to the 20th inst., will then be offered at auction. Enquire of JAMES FROST, Fulton Avenue, near Gold st., Brooklyn. 34 2*

Patent Office.

123 FULTON ST.

NOTICE TO INVENTORS.—Inventors and others requiring protection by United States Letters Patent, are informed that all business relating to the procuration of letters patent, or filing caveats, is transacted at the Scientific American Office, with the utmost economy and despatch. Drawings of all kinds executed on the most reasonable terms. Messrs. Munn & Co. can be consulted at all times in regard to Patent business, at their office, and such advice rendered as will enable inventors to adopt the safest means for securing their rights.

Arrangements have been made with Messrs. Barlow and Payne, Patent Attornies, in London, for procuring Letters Patent in Great Britain and France, with great facility and dispatch.

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Coburg, Canada West, 8th April, 1850. 32 6*

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Scientific Museum.

Spheroidal State of Water.

Two weeks ago we reviewed the letter of Mr. V. Beaumont, C. E., respecting the discovery of M. Boutigny, and the invention of M. Beauregard, of Paris. Although we assert that Boutigny was not the first to discover and write about the spheroidal state of water, yet he has developed some very interesting phenomena connected with it, but such phenomena prove the very reverse of intensely heated surfaces being good for the rapid generation of steam. M. Boutigny has discovered that if the hand be sufficiently moistened with water, it may be passed through molten metal with impunity. According to a letter of Mr. Beaumont, in the Tribune, some time ago, this has been done at the Allaire Works. Although such things are but beginning to be noticed now among some of our engineers, Boutigny's experiments have been before the world since 1845. It was ascertained as far back as 1843, at least, that the greatest rise of vapor in a given time, resulted from water thrown upon iron heated to about 400, and that evaporation decreased with an increase of temperature, and almost erased when the iron attained to 800°. This is a consequence of the slender radiation of the heat of the iron into the water through the *atmospheres* of the *spheroids*, which form upon the intensely heated surface of the iron and separate them from the heating surface like balls standing over a plane, for there exists a repulsive condition between the water and the metal; and to prove this if a small quantity of nitric acid be thrown upon silver, cold, it will soon corrode it; but if it be thrown upon a hot crucible of silver to induce the spheroid state, no corrosion takes place. Alcohol and all the liquids possess the property of assuming the spheroid state when thrown upon surfaces at a certain heat—alcohol at 273° and ether at 140°.

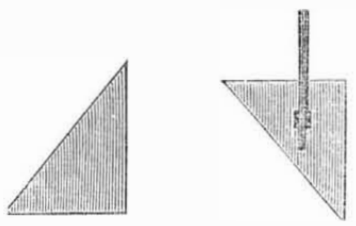
By our Washington correspondent, last week, a Mr. Tippett of Va., it seems, has invented a plan of producing steam upon the principle of M. Beuregaud, which we stated before to be about one hundred years old. By Mr. Tippett's plan the steam is raised by means of a small jet of cold water injected upon a large plug of iron fixed in the furnace, and of sufficient bulk to retain the heat that might be dissipated by a very simple but perfect contrivance, this steam enters the cylinders, and moves the piston in a manner similar to a common engine. This plan, it is stated, will prevent steam boiler explosions.—There is no doubt of it, and it prevents the generating of a sufficient quantity of steam, likewise. Iron frequently heated to redness, soon oxidizes, if exposed to the atmosphere, or if subjected to the action of water, and it then becomes a very bad conductor of heat. Some things are very deceptive for a few experiments. Experience has proven that a boiler filled well to the water line, when its water is at 212°, will generate as much steam, and as fast as it would if only filled half full, and this is reasonable, when we take into consideration that the whole water in the boiler is at the boiling point, and receives the benefit of the whole heating surface. There is, therefore no advantage, economically, taking this view of the case, viz., in generating steam in a small vessel, by injecting the cold water of supply on an intensely heated surface, but there is a decided disadvantage, especially when we take into consideration that 17 gallons of water, in the state of steam, will raise 100 gallons of water from 60° to 212°, and it cannot but be that there is some economy in injecting the feed water among a reservoir of hot water in the boiler. By this old fashioned plan there is no intermission in generating the supply of steam, but in the new proposed plan intermissions of the requisite supply of steam are highly probable. While steam is employed as a propelling power, steam boilers will be used to generate the steam. There will be great improvements yet made in economising fuel, but we never expect to see great mechanical effects produced, without great mechanical means employed.

History of Propellers and Steam Navigation.

[Continued from page 264.]

MR. EWBANK'S (COMMISSIONER OF PATENTS) EXPERIMENTS.

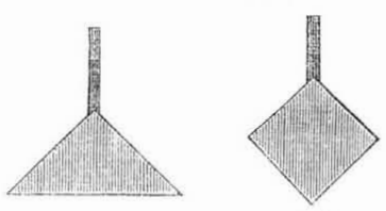
FIG. 43. FIG. 42.



The same paddles (fig. 41, last No.) were next attached to the arms in the position represented in the margin, and distinguished as fig. 42, the upper side being, as in all other instances, 13 inches from the centre of the axis. Through repeated trials, they overcame the test paddles, fig. 40, and in a rather more marked manner than fig. 40. surpassed fig. 41 They entered the water silently, but observers on shore thought they raised more water behind, but did not raise it as high as fig. 40.—Their points were nearly 3 inches lower in the water than the lower edges of fig. 40. The boat described a circle of 400 feet, and another of 600.

The same blades were next tried as fig. 43. From the experiment fig. 42, it was inferable that, if inverted, the effect of the blade on the boat would have a longer sweep through the water. Such was the fact, and to such a degree, that first two, and then four, were removed from the arms, when the remaining four were found equal to the eight of fig. 40. The plates were next raised, till their lower edges were on a level with those of No. 1. In that position, two inches of their upper extremities were above the surface of the river; but, notwithstanding, they had a decided advantage even then, over the square ones.

FIG. 44. FIG. 45.

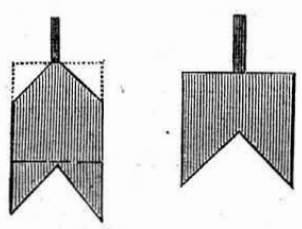


Lastly, the same blades were turned into the position of fig. 44, (being fig. 41 reversed.)—The boat was turned on No. 3 under all circumstances, describing circles from 80 to 150 feet in diameter. Four of them equalled eight of No. 3. They were thought to throw off more water behind than their competitors, which, from the greater extent of their extremities, was probably true.

The next form tried was fig. 40, placed in the position of fig. 45. These turned the boat round against the test ones, in circles varying from 50 to 200 feet. We then tried six of them against the other eight, when there was little observable difference in the result. Four were found superior, but three were equal to them. These, of course, entered the water, without jarring, and threw it off at their points. Mr. B. thought they threw up more than fig. 40.

Figure 46, formed by removing the upper corners below, as in the figure, seemed to have the advantage of fig. 45, but as light winds troubled us, we felt some hesitation in pronouncing them better. Four were superior to eight of No. 3. It was supposed that a slight accession of resistance to the lower ends,

FIG. 46. FIG. 47.



sweeping through the water, might be derived from opposing currents meeting in the forks, but we had no means to ascertain if it existed.

Figure 47 is cut out of plates eight inches square, with one-forth, (minus a superficial inch,) removed, as shown in the figure. After several excursions, these were thought to exhibit a very slight advantage over fig. 40; but from subsequent tests, they seemed to be balanced. We, on another day, reversed them as fig. 48, which had a decided preponderance over their competitors. Six predominated slightly over the latter, and four seemed nearly equal to them. There was a difference of opinion on the last point—some thinking they were quite as effective as the opposing eight.

The Employment of Chloroform.

The following article from Chambers' Edinburg Journal, and is well worthy of attention by all our physicians and surgeons, although we must say that we are far in advance of the London M. Ds., as chloroform is generally used in all our hospitals. Chloroform has been employed in Edinburgh in from 80,000 to 100,000 cases, without a single accident or bad effect of any kind traceable to its use. Mr. Carmichael, a surgeon commenting on the fact says: "Would 80,000 or 100,000 full doses of opium, or medicine, have been followed with as great impunity?" Chloroform is habitually used in Edinburgh in all kinds of surgical operations, down to tooth-drawing. It saves many lives which otherwise would sink under the nervous shock which is experienced from a severe operation undergone in a state of consciousness. Such is the published opinion of the discoverer of its use as an anæsthetic, the now celebrated Dr. James Y. Simpson; and this opinion has not been gainsayed by any of the profession in Edinburgh. At the same time, chloroform has received the sanction and recommendation of the most authoritative bodies in France and the United States. Nevertheless, the public of London is almost wholly denied the vast benefits of this agent, purely through the prejudices of profession. This forms a curious illustration of the condition of medicine and of the medical mind in the metropolis, but it is not a new one.

Not only is there a distaste amongst scientific men in England for every thing that comes from the north, but there is a generally benightedness in the London medical world.—They opposed vaccination while it was embraced in the provinces, and to the indelible disgrace of all concerned, inoculation with smallpox maintained its ground in a London hospital devoted to the purpose a quarter of a century after Jenner's discovery. The London public should take this matter into their own hands. Let them not be too ready to lay stress upon accounts of fatal effects from chloroform. Of such there have been a few; but it is remarkable that in Edinburgh, where the article is prepared in perfect purity, with the benefit of first-rate apparatus, and where it is administered with judgement and due care, not one accident has happened. Even admitting that the accidents which have happened elsewhere were not avoidable by any degree of care, they should be placed beside the lives which have been saved by the special use of this agent. Taking the matter on still lower ground, the rejection of chloroform because of a few fatal cases is no more rational than it would be to refuse to travel by railways because one person in several millions has been killed by a collision.

Case-Hardening.

Case-hardening is a superficial conversion of iron into steel by cementation. It is performed on small pieces of iron, by enclosing them in an iron box, containing burnt leather, bone-dust, or any other carbonic material, and exposing them for some hours to a red heat.—The surface of the iron thus become perfectly metalized. Iron thus treated is susceptible of the finest polish.

Expeditious Mode of reducing Iron Ore into Malleable Iron.

The way of proceeding is by stamping, washing, &c., the calcine and materials, to separate the ore from extraneous matter; then fusing the prepared ore in an open furnace, and instead of casting it, to suffer it to remain at the bottom of the furnace till it becomes cold.

To make Edge-tools From Cast Steel and Iron.

This method consists in fixing a clean piece of wrought iron, brought to a welding heat, in the centre of a mould, and then pouring in melted steel, so as entirely to envelope the iron, and then forging the mass into any shape required.

Gravity Vs. Folly.

It was a saying of Paley, that he who is not a fool half of the time, is fool all the time.—Robert Hall, who held a similar opinion, on being reproached by a very dull preacher, with the exclamation, "how can a man who preaches like you, talk in such a trifling a manner?" replied, "there, brother, is the difference between us; you talk your nonsens in the pulpit—I talk mine out of the pulpit." The eminent Doctor South, being in the midst of a frolic on one occasion, and seeing a dignified, unbending acquaintance approaching, exclaimed: "Stop! we must be grave now, there is a fool coming!"

LITERARY NOTICES.

THE HISTORY OF THE DECLINE AND FALL OF THE ROMAN EMPIRE. By Edward Gibbon, with Notes by H. H. Milman. Boston: Phillips, Sampson & Co.—Volume 3 of this work has appeared upon our table. We earnestly recommend our friends to purchase this cheap and beautiful edition, as they may not again have so favorable an opportunity. Dewitt & Davenport, Tribune Buildings, have the three volumes for sale, at 62 1-2 cents each.

Messrs. Dewitt & Davenport have just published the life of Jenny Lind, the Swedish Nightingale, edited by G. C. Foster. Our people will be anxious to get hold of it, now that the fact is settled that we are to have her here in September.

THE PHRENOLOGICAL JOURNAL.—The May number of this Journal, published by Fowlers & Wells, Clinton Hall, this city, is a very excellent one: it contains a likeness of President Munroe, who has a very Celtic countenace, with a phrenological description of his character, and his biography.

THE BANKER'S MAGAZINE.—This very excellent and useful Magazine for May contains some of the most interesting articles, we have ever read. Some may think it a dry and a peculiarly moneyish book, but while it furnishes all useful and necessary information about the "potent dollar," it contains some o the most readable information of any Magazine whatever. It is edited by J. Smith Homans, Boston.

HOLDEN'S DOLLAR MAGAZINE, May Number: W. H. Deitz, publisher, N. Y.—This number is brimful of the most fascinating matter, besides several spirited illustrations. To think that such a beautiful magazine is furnished for one dollar. People have no excuse for being ignorant, when choice literature is furnished at such low rates.

H. Wilson, No. 49 Ann street, N. Y., has just issued a very neat and convenient guide book of the Hudson River, comprising a diagram of the river and proper location and description of the most prominent places, and objects of interests along its banks. It is really a valuable publication for all who have any desire to know the full particulars of this, the most beautiful river in America. We think the price is 25 cents.

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